REMARKS

Claims 1-23 are pending in the present application. In the Office Action, claims 1-23 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Alamouti (U.S. Patent No. 5,931,965) in view of Kato, et al (U.S. Patent No. 5,436,918) and Shimoda (U.S. Patent No. 6,122,120). The Examiner's rejections are respectfully traversed.

To establish a *prima facie* case of obviousness, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Furthermore, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. That is, there must be something in the prior art as a whole to suggest the desirability, and thus the obviousness, of making the combination. In fact, the absence of a suggestion to combine is dispositive in an obviousness determination. The mere fact that the prior art can be combined or modified does not make the resultant combination obvious unless the prior art also suggests the desirability of the combination. M.P.E.P. § 2143.01. Finally, there must be a reasonable expectation of success. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure.

A recent Federal Circuit case emphasizes that, in an obviousness situation, any motivation to combine or modify the prior art must be based upon a suggestion in the prior art. Conclusory statements regarding common knowledge and common sense are insufficient to support a finding of obviousness. Moreover, it is claimed invention, as a whole, that must be considered for purposes of determining obviousness. A mere selection of various bits and pieces of the claimed invention from various sources of prior art does not render a claimed invention

obvious, unless there is a suggestion or motivation in the prior art for the claimed invention, when considered as a whole.

Alamouti describes a technique for trellis encoding signals that involves constructing an encoder output table and a state transition table. Alamouti also notes that certain lookup table encoder implementations may result in catastrophic codes. In order to avoid these catastrophic codes, Alamouti describes a modification that may be made to the state transition lookup table. Alamouti characterizes this modification as "simple." See Alamouti, col. 22, ll. 6-32. However, as admitted by the Examiner on page 3 of the Office Action, Alamouti fails to teach or suggest periodically inserting known symbols into a digital input data sequence, as set forth in independent claims 1, 6, and 15.

Kato describes inserting fixed bits into an information signal for error correction encoding. The Examiner alleges that Kato describes inserting the fixed bits periodically into the information signal series. However, Applicants respectfully submit that there is no support in Kato for the Examiner's allegation. Kato teaches that fixed bits are inserted in a data stream to reduce a residual bit error ratio for the *same* line bit error ratio. Thus, Kato describes inserting the fixed bits concentratedly or distributedly. See Kato, col. 4, ll. 15-16. However, Kato does not teach or suggest inserting the fixed bits *periodically* into the digital input data sequence, as set forth in independent claims 1, 6, and 15.

Shimoda describes techniques for reproducing recorded audio information that may prevent information from being erased due to heat relaxation. Shimoda mentions that increasing the longest 0 consecutive (k) values to a value exceeding k=7 may obviate the occurrence of a catastrophic code. See Shimoda, col. 1, ll. 40-45. However, Shimoda does not teach or suggest

inserting the fixed bits periodically into the digital input data sequence, as set forth in independent claims 1, 6, and 15.

The Examiner then alleges that it would have been obvious to combine the subject matter described in the cited references to arrive at the claimed invention. Applicants respectfully disagree for at least the following reasons.

As discussed above, the cited references fail to teach or suggest all of the limitations of the claimed invention. In particular, the cited references fail to teach or suggest inserting the fixed bits periodically into the digital input data sequence, as set forth in independent claims 1, 6, and 15. Moreover, even if one assumes for the sake of argument that the cited references describe the limitations set forth in the claimed invention (and Applicant reiterates that they do not), the cited references fail to provide any suggestion or motivation for combining or modifying the prior art of record to arrive at the claimed invention.

Alamouti states that catastrophic codes may be avoided by implementing a simple modification to the state transition lookup table. Thus, Alamouti provides no suggestion or motivation for the Examiner's proposed modification of the prior art. Nor does the Examiner provide any reason why the *simple* modification proposed by Alamouti is inadequate to solve the problem of catastrophic codes and should be replaced by the Examiner's proposal to insert bits periodically into the digital input data sequence.

Kato is completely silent with regard to the problem of catastrophic codes and therefore also fails to provide any suggestion or motivation for inserting the fixed bits periodically into the digital input data sequence. To the contrary, Kato teaches that bits may be inserted concentratedly or distributively and provides no indication that there is any particular benefit to inserting bits periodically. Kato also teaches away from the present invention. In particular,

Kato teaches that fixed bits are inserted in a data stream to reduce a residual bit error ratio for the *same* line bit error ratio, whereas the present invention teaches periodically inserting known symbols to *reduce* the line bit error ratio. It is by now well established that teaching away by the prior art constitutes *prima facie* evidence that the claimed invention is not obvious.

Shimoda is concerned with problems associated with reproducing recorded audio information, *e.g.*, information that is recorded on magnetic tape. Applicants respectfully submit that a person of ordinary skill in the art relevant to the present invention would not look to techniques used for reproducing recorded audio information for solutions to the problems of encoding and/or decoding signals representative of digital data that may be transmitted over an air interface. Furthermore, even if a person of ordinary skill in the art were to look to Shimoda for information, Shimoda provides no teaching or suggestion for inserting bits periodically into a digital input data sequence. To the contrary, Shimoda states that increasing the longest zero consecutive (k) values to obviate the occurrence of a catastrophic code may *disadvantageously lead to a poor error rate*. See Shimoda, col. 1, ll. 40-45. Thus, Shimoda teaches away from the Examiner's proposed combination of the cited references. It is by now well established that teaching away by the prior art constitutes *prima facie* evidence that the claimed invention is not obvious.

For at least the aforementioned reasons, Applicant respectfully submits that the Examiner has failed to make a *prima facie* case that the present invention is obvious over Alamouti, Kato, and Shimoda, either alone or in combination. Applicant respectfully requests that the Examiner's rejections of claims 1-23 under 35 U.S.C. 103(a) be withdrawn.

For the aforementioned reasons, it is respectfully submitted that all claims pending in the present application are in condition for allowance. The Examiner is invited to contact the

undersigned at (713) 934-4052 with any questions, comments or suggestions relating to the referenced patent application.

Respectfully submitted,

Date: 3/3/06

Mark W. Sincell, Ph.D.
Reg. No. 52,226
Williams Morgan & Amerson, P.C.
10333 Richmond Avenue, Suite 1100
Houston, TX 77042
(713) 934-7000
(713) 934-7011 (Fax)

AGENT FOR APPLICANTS